1: Metraux E-5 (1934-1935) 1940
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Water Sources

There are no rivers on Easter Island. The little ravines (*ava*) which appear on the north coast are clearly not due to erosion, but may be partly of constructional origin. Water runs in them only rarely and sporadically. The rain filters into the porous ground forming local water tables where it meets impermeable layers. The chief water bodies are only slightly above sea level and thin streamlets often flow toward the shore. Unfortunately the fresh water, especially during high tide, mixes with salt water and becomes decidedly brackish. At several places walls were built to protect the fresh water from being spoiled by the sea. At Tahai there is a kind of basin, separated from the sea by a wall, where fresh water mixes with salt water. Previously the natives drank that water and today the cattle are watered there. Captain Cook obtained water for his ship from such a spring (53, vol. 1, p. 289):

> The little [water] we took on board could not be made use of; it being only salt water which had filtrated through a stony bench, into a stone well. This the natives had made for the purpose, a little to the southward of the sandy beach often mentioned; and the water ebbed and flowed into it with the tide.

Along the shore, where the coast is low, natives dug reservoirs (*puna*) which impounded rain water and perhaps some fresh water springs. A deep ditch, between 2 and 3 meters deep, is dug near the shore. The seaward, lateral sides are perpendicular and lined with stones perfectly fitted (pl. 1, *C*). The landward side slopes at an angle of 45 degrees to the base of the opposite wall and is paved with boulders. After a rain the running water is led to the interior of the basin where, at the same time, water from the underground water body collects. A few of these reservoirs or springs still contain water, but most of them are filled with mud. According to my informant, there is always water in them even though it does not rain. Cook's reconnoitering party report (53, vol. 1, pp. 283-284) that the natives used these reservoirs not only for drinking but also for bathing.

Near Ovahe, at Vai-a-hoa, is a well which has been modified to form a modern water mill. The square pit is several meters deep; its smooth walls are lined with stones laid horizontally. In a few places there are springs, holes among the rocks into which water percolates. Ruins of ancient settlements are always thick around water holes. The most famous are the water pools near Ahu-te-peu, Puna-marengo, and Vai-tara-kai-ua. The water at Vai-tara-kai-ua is in a deep hole which has been covered with big blocks of stones so that only a small, narrow passage remains, just wide enough for one person. Behind Anakena abundant water is found. On the Puakatiki, a hole in a cliff where water collects has been carved all around into the form of a big human face (Vai-a-heva). After a prolonged rain the water of Rano-aroi flows through a gap into another pool. This pool empties into a long, narrow fissure where water is

1: Metraux E-5 (1934-1935) 1940
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312 always found. I noticed on a few rocks near ancient settlements small rectangular depressions artificially carved. The natives explained them as tanks to collect rain water.

133 271 312 The water of the crater lakes (*rano*) has always been an inexhaustible reservoir but it is apparently too inaccessible to have been much used. Some early travelers report that the natives chewed sweet potatoes and sugar cane to quench their thirst when walking.

312 Today abundant water from the corrugated iron roofs is collected in tanks or barrels.

PLANT LIFE

137 Skottsberg (208, vol. 2, p. 489) writes that "there does not exist another island of the size of Easter and with such a fine climate where the native flora is so poor. Only about 30 species are considered to be indigenous." Despite the introduction of many new plants and trees, grass is still the only vegetation on most of the island. Only the crater of Rano-kao with its green belt and the farm of Mataveri are exceptions. The general appearance of the island has not changed much since its discovery; then shrubs, principally of *toro-miro*, sandalwood, *Triumfetta semitriloba*, and *Sapindus*, were seen in many places along the coast and were, perhaps, even more abundant in the interior. It is possible that when the first settlers landed on the island they found a kind of savanna forest "a park-like formation with scattered, stunted *Sophora* trees and grass cover" (208, vol. 2, p. 492). The flat, rocky plains were probably devoid of trees and the savanna confined to the hillsides.

The almost entire absence of trees impressed the ancient travelers more than any other feature. Aridity is still invoked as one of the most decisive arguments in support of the theory of some vast cataclysm which completely changed conditions on the island and reduced its inhabitants to utmost misery after a time of plenty during which their culture developed. Early voyagers, landing at various parts of the island and making hasty generalizations, differ 134 greatly in descriptions of the fertility of the land. Roggeveen holds in high esteem its ability to be cultivated (186, pp. 9-10, 21):

> The reason why, at first, when at a farther distance off, we regarded the said Easter Island as being of sandy nature is that we mistook the parched up grass, and hay or other scorched and charred brushwood for a soil of that aride nature, because from its outward appearance it suggested no other idea than that of an extraordinarily sparse and meagre vegetation; and the discoverers had consequently bestowed upon it the term sandy.
>
> . . . Nor can the aforementioned land be termed sandy, because we found it not only not sandy but on the contrary exceedingly fruitful, producing bananas, potatoes, sugarcane of remarkable thickness, and many other kinds of the fruits of the earth, although destitute of large trees and domestic animals, except poultry. This place, as far as its rich soil and good climate are concerned, is such that it might be made into an earthly Paradise, if it were properly worked and cultivated; which is now only done in so far as the Inhabitants are obliged to for the maintenance of life.

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A, VIEW OF RANO-RARAKU FROM THE SOUTH; *B*, ANAKENA BAY; *C*, CISTERN AT LA PÉROUSE

[End Plate I]

9: Forster T-5 (1774) 1777
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have been glad to have aſcertained this circumſtance, but the natives always denied us admittance into theſe places. 1774. March.

A plantation of ſugar-canes and one of bananas adjoined to the houſe we had viſited, and both were in excellent order, conſidering the ſtony quality of the ground. The bananas were all growing in holes one foot deep, which we ſuppoſed to be contrived for collecting the rain, and preſerving it for a longer time about the plant. The ſugar-canes were about nine or ten feet high, even in this parched country, and contained a very ſweet juice, which the inhabitants preſented to us very frequently, and particularly whenever we aſked for ſomething to drink. We concluded from thence that they had no water on the iſland; but coming back to the landing-place we met captain Cook, whom the natives had conducted to a well very cloſe to the ſea, which was cut deep into the rock, but full of impurities. When our people had cleared it, they found the water in it rather brackiſh, but the natives drank of it with much ſeeming ſatisfaction.

Captain Cook had not been very fortunate in trading with the people. They ſeemed indeed to be ſo deſtitute as to have no proviſions to ſpare. A few matted baſkets full of ſweet potatoes, ſome ſugar-canes, bunches of bananas, and two or three ſmall fowls ready dreſſed, were the whole purchaſe which he had made for a few iron tools, and ſome Taheitee cloth. He had preſented the people with

9: Forster T-5 (1774) 1777
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1774. MARCH. we found an entire ſkeleton of a man. A good view of ſome of theſe monuments is inſerted in captain Cook's account of this voyage. Our people ſat down on the ground, and laid their bundles of proviſion before them, whilſt the officers, and other gentlemen with myſelf, converſed with the natives. One of our ſailors, who carried my plant-bag, in which were a few nails, &c. being leſs careful of his bundle than the reſt, a native ſnatched it up and ran off with it. None of us ſaw it, except lieutenant Edgecumb, who immediately fired his muſket, loaded with ſmall ſhot, at the thief, and thus gave the alarm to us all. The native being wounded threw down the bag, which our people recovered, but he fell ſoon after; his countrymen took him up, and fled to a little diſtance, till we beckoned to them to return, which almoſt all of them did. Though this was the only inſtance of firing at a native during our ſtay at Eaſter Iſland, yet it is to be lamented that Europeans too often aſſume the power of inflicting puniſhments on people who are utterly unacquainted with their laws.

[312] "From this ſpot we continued our march a good way inland, and were conducted to a deep well, which appeared to have been formed by art, and contained good freſh water, though ſomewhat troubled. We all drank heartily of it, and then went on, paſſing by ſeveral large ſtatues, which had been overturned, till we came in ſight of the two hummocks, near which we had perceived the greateſt number of pillars

9: Forster T-5 (1774) 1777
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of Taheitee. The monarchical government likewiſe ſtrengthens the affinity between the Eaſter Iſlanders and the tropical tribes, its prerogatives being only varied according to the different degrees of fertility of the iſlands, and the opulence or luxury of the people. Eaſter Iſland, or, as the natives call it, WAIHU, is ſo very barren, that the whole number of plants growing upon it does not exceed twenty ſpecies, of which far the greater part is cultivated*; though the ſpace which the plantations occupy is inconſiderable, compared with that which lies waſte. The ſoil is altogether ſtoney, and parched by the ſun, and water is ſo ſcarce, that the inhabitants drink it out of wells which have a ſtrong admixture of brine; nay, ſome of our people really ſaw them drink of the ſea-water when they were thirſty. Their habit of body muſt, in ſome meaſure, be influenced by theſe circumſtances; they are meagre, and their muſcles hard and rigid; they live very frugally, and, in general, go almoſt wholly naked, only covering the head, which is the moſt ſenſible of heat, with feathered caps, and puncturing or daubing the reſt with colours. Their ideas of decency are, of courſe, very different from thoſe of nations who are accuſtomed to clothing. They cut ſhort their hair and beards

* The Spaniards mention white calabaſhes, (*pompions,*) among the vegetable productions of this iſland; but we did not ſee any.—See Mr. Dalrymple's judicious letter to Dr. Hawkeſworth.

from

10: Cooke D-5 (1886) 1899
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under way and continued our route along the cliffs on the north shore of the island. At platform No. 29 a pit was excavated in which a collection of human skulls, without any other portion of the remains, was found. Our track this day led us to Anakena Bay, according to tradition the original landing place of King Hotu-Metua, his queen, and followers, from whom the present inhabitants claim their descent. We found at the head of the bay a fine, extensive sand beach, the first we had fallen in with, forming a good landing place for small boats. The breakers and still water in the vicinity were seen swarming with fish of several varieties, of which the natives gave us their names. The sand beaches were thickly strewn with the "Portuguese man-of-war" (*Physalia utriculus*), called by the natives *Papaki*, and which, to the writer's great surprise, they informed him was eaten by them as food. Adherent to the rocks was found the singular, cuirass-covered little creature, called by the natives *kemoma*, one of the *Chitons*, perhaps the *magistiosus*, which is also used by them as an article of diet. Thus, also, a small univalve, called by them *ngingongi*, large collections of the shells of which were found stowed away in the walls of the stone huts at the edge of the crater, on Rana Kao, where also was found the remains of the *Chiton*. The sea urchin, *Echinus* (*esculentus?*), in Rapa Nui-*hetuki*, and a diminutive snail, which they call *pipi*, were found at Anakena. All the above form a part of their dietary, and they seemed to speak of and regard them as tidbits.

Sometime was passed at Anakena, exploring its vicinity where, there is every reason to suppose, an extensive town existed, for which the nature of the surface, ascending gradually from the water's edge to high land on either side, with a hill rising between and running back into the interior, forms a most admirable site. The remains of former habitations were found in various directions. At some distance back from the sea on rising ground, in an isolated position, far removed from any platform or image, was found the largest tufa crown we had yet seen and which subsequent investigation proved the largest on the island. It was slightly oval in shape, lay on its side, was buried in the earth to a depth of about 2 feet, and by actual measurement was 27 feet 9 inches in circumference, 9 feet 9 inches in diameter across the long and 9 feet 2 inches across the short oval, and 9 feet high.

Beyond Anakena Bay the walking became especially difficult and laborious at one point, near Ovahe Bay, it was necessary to scale the face of a cliff, at about midway of its height, on a narrow ledge of rock.

Our camp, named "Whitney," for the honorable Secretary of the Navy, was located for this night near Hanganone Bay, about 4 miles from our starting point of the morning, and it was nearly dark when we entered its welcome precincts. Supplies from the ship, brought by the boat, which had been nearly all day reaching Anakena, were carried thence overland and arrived in camp during the evening.

Near our present camping ground we found the best water of any

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312 during our entire trip and we duly commended our guides, accordingly, much to their gratification. I was much surprised when, next morning, on visiting the well, or spring, situated immediately adjoining one of the image platforms, I found it nothing more than a shallow excavation among the loose stones, and covered in order to keep the cattle and sheep from drinking the precious fluid, of which there was but a few inches in depth remaining. The water was surface water only, and had percolated between the rocks, into the cavity, after rains. The knowledge that these image platforms, have, from time immemorial even unto the present day, been utilized as burial places by the natives, did not enhance our enjoyment of the liquid.

123 The men slept in a comfortable cave that night, and for our own accommodation an overhanging shelf of rock was economized. This was too narrow to entirely shelter the party, and the deficiency of rock was, therefore, supplemented with blankets, banana leaves, etc., laid upon cords stretched in various directions. The scheme proved a delusion, for the post-midnight showers descended as usual, the banana leaves formed admirable conduits to lead the water where it did the most harm, and the customary hasty vacating of the den in the night was the inevitable result. These successive nocturnal experiences served to impress on our minds the absurdity of leaving the ship unprovided with a suitable tent, or at least an old sail with which necessary shelter could be improvised.

We struck camp and got away early, sending the camp builders with the pack animals overland to the south side of the island, where at a certain place, as the natives informed us, a fine, roomy cave and good water would be found, and which was decided upon as our next camp.

Our own course continued along the north coast around Cape Pokokoria, along the east shore to Cape Anaatauvanui, and thence in a westerly direction along the south coast to camp, near Hanga Nui Bay and Point Oneteu.

During the early part of the day the ground was of the same rugged nature as that already passed over, but on reaching the base of Mount Pua-ko-taki, at the eastern end of the island, the character of the surface changed, being covered with hummock grass, alternating with extensive tracts of fine, red volcanic sand, and dust, more particularly on the northern and eastern slopes of the mountain. It was [172] asserted that in this red sand most of the stone axes and other implements were to be found, particularly after strong gales, when they were uncovered by the wind, and careful search was made accordingly, but with indifferent success. After luncheon, partaken of on top of the mountain, the descent, which was gradual, as was also the ascent, was made on the eastern side, the ground being of the same sandy nature. Diligent search was again made while traversing this, and a few specimens of stone implements, in large part mutilated, were obtained.

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342 grass. There were several elevated platforms, edged off with bowlders, which were for sleeping places, and the remains of an ancient fireplace could be traced in one corner. Two huge rocks, with a flourishing tobacco plant growing between, guarded the entrance, from which a grass-covered lawn inclined downward to the rocks at the water side.

The men were accommodated in another comfortable cave at about 100 yards distance inland, and the camp fire was kept brightly burning in a clear space among the bowlders on the declivity hard by.

312 At no time during our trip were we without food. On the contrary, sheep were plentiful all over the island. Drinking water, so indispensable, and yet so scarce on Rapa Nui, was obtained from several sources near Camp Baird, but all was equally unpalatable. Our first supply (we remained at this camp about three days) was obtained from a so called well, half a mile distant, located among the rocks near the edge of the bay, and was salt at high water and more or less brackish at all times.

The water from a spring discovered by Quartermaster Lowrie was also unpalatable, and a supply obtained from the crater of Rana Roraka, near by, owing to its animal and vegetable impurities, was more so. It is to this crater that by far the larger number of cattle resort to drink, and their grazing ground, for this reason, is mostly located on this part of the island.

000 On the evening of our arrival, December 24, having partaken of a hearty dinner and lighted our cigars, we stretched ourselves, weary and foot sore, on the grass in front of our cave. The conversation, brisk and merry at first, soon flagged, became desultory, and presently ceased entirely. It was "the night before Christmas;" our mere physical, corporeal nature was pressing the soil of Rapa Nui, but the spirit, our immaterial part, was many leagues away.

172 At various times during our stay the writer purchased crania which the natives offered him for sale, and among these were several skulls of ancient Kings, bearing peculiar marks which, Mr. Salmon assured him, he then saw for the first time, and of the genuineness of which he had no doubt.

123 Christmas forenoon was passed in exploring the region in the vicinity of the camp, several cairns being opened with variable success in the 532 matter of specimens. In the afternoon the crater of Rana Roraka was visited and note taken of the very numerous finished and unfinished images, some standing, others prostrate, scattered over its slope and the great plain at its base, where there is every reason to believe once stood a populous town. The quarries, "workshops," were also visited 532 and the many partly completed monoliths, still attached to the original rock, examined. As in Egypt, where, in the quarries at Syene, near the First Cataract, the largest obelisk still lies unfinished, so here, in one of the excavations on the outer slope of the crater, may be seen the largest of the stone images to be found on Rapa Nui in an incomplete

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342 natives built many of these huts, the cairns for the dead, and other buildings, of these lava blocks, loosely piled up, and Messrs. Salmon and Brander apply them to good use in constructing their extensive corrals and fences, with the added advantage of thus clearing the soil for planting, wherever desirable.

137 A coarse hummock grass and a variety of finer quality grow profusely over nearly the entire island, sprouting vigorously among the lava fragments, and affording abundant pasturage for the herds of cattle, horses, and sheep, the former numbering 600 and the latter 18,000 at the time of our visit, and both multiplying rapidly.

134 On the northeastern end of the island, and on the slopes of Mount Pua-ko-taki, the surface is covered with fine, red, volcanic sand and dust, which is kept in constant motion by the winds, and is barren of vegetation of any kind.

132 At the time of our visit, December, which is during their dry or summer season, extending from October to April, the periods of the
● 312 southeast trades, there were no running streams on the island, nor, with the exception of the valley at the base of Rana Kao, were there any evidences of the former existence of such visible. Fresh water away from the habitations was exceedingly scarce and difficult to obtain, although showers of rain at night were not infrequent.

312 The alleged springs or wells, including *Puna Pua*, the "Unfailing Spring," so highly spoken of by former visitors, were at long distances apart, were merely shallow excavations among the bowlders into which the surface water percolated, and were covered to protect them from the animals. The water contained in them was rarely of more than a few bucketsful in quantity, and with a single exception, at Camp Whitney, of bad quality. That contained in the lakes inside the two craters, the accumulations of the rainy seasons, and surface drainage also, was fully as bad, and impregnated both with vegetable and animal matter, the former from the dense growth on the surface, the latter from the herds of cattle which came to the lakes to drink.

271 It may be mentioned in this place that the natives, from long habit, no doubt, have become accustomed to drink but sparingly. We were surprised, during our expedition around the island, to notice how rarely they resorted to the canteen, with which all were provided, and they, no doubt, were equally amazed at our constant demand for water, made necessary to replace the loss from perspiration, induced by violent exercise and the sun's heat. They were always careful to locate our camp near, and anxious to keep us well supplied with, as good water as was to be had, and when we broke camp in the morning the "springs" in the vicinity were usually drained dry.

312 It was at first a mystery to us whence the animals obtained their supplies, but as to the cattle, they never wandered far away from the craters, in whose lakes they could, at all seasons, quench their thirst. In so far as the sheep were concerned, whose needs in this respect are

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not great, no doubt the night dews, which are quite heavy on Rapa Nui, and with which the grass is loaded in the mornings, amply supply all their requirements in this respect. 312

At the habitations, the rain falling on the roofs of the houses was collected in iron tanks, and the water thus obtained was unexceptionable. During the winter season, April to October, when the winds are variable, there is ample rainfall, and fresh water is abundant.

Having no knowledge of the potter's art, earthen vessels are unknown, [323] although red clay of fine quality is plentiful on the island. Neither does the cocoanut palm, so indispensable to the natives throughout Polynesia, grow upon the island, at the present day at least. A variety 415 of gourd flourishes luxuriantly, however, and the fruit of this, properly 137 seasoned, furnishes them with vessels for holding their water.

The flora of the island is a very meager one. Tradition has it that 137 it was barren until King Hoto Metua, the "Prolific Father," with his Queen and followers, landed and took possession, bringing with them seeds and fruits.

Except in the immediate vicinity of the houses occupied by Messrs. Salmon and Brander, the island may be said to be treeless. In the places mentioned a few fig, acacia, paper mulberry, and other trees grew to a fairly good height. In other parts of the island may be seen, in places in considerable numbers, a hard-wood tree, more properly bush or brush, called by the natives *toromiro*. These must have flourished fairly well at one time, but are now all, or nearly all, dead and decaying by reason of being stripped of their bark by the flocks of sheep which roam at will all over the island. None of the trees are, perhaps, over 10 feet in height, nor their trunks more than 2 or 3 inches in diameter. The wood is exceedingly hard and heavy, somewhat resembling our apple, and the natives used, and still use it, to this day in making their house Gods, their Penates. These are rudely carved out of the solid 532 wood, hideous imitations of the nude human form, male or female; 2 to 3 feet in length, with preposterous development of chest and preternatural collapse of abdomen, as though famine had brooded over the land and the patient had perished of inanition; with attenuated forms, long, slender arms and legs, narrow faces, a goatee, long, prominent ears, etc. In the eyes of these idols the iris is usually represented by a circular button of bone, generally cut from a human skull, while a fragment of obsidian, fixed in a round hole in the center of this, and which glistens in the light, makes a fair imitation of the pupil, both being deftly fitted in the wood of the ball. On the first occasion when the writer saw a skull from which several such buttons of bone had been removed for the purpose mentioned, he was impressed with the idea that the ancient Rapa Nuis, like the ancient Peruvians in the time of the Incas, were acquainted with the operation of trephining and performed it in a much neater manner. Subsequent investigation speedily undeceived him on that point.

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[137 133 There are a few stunted trees and bushes growing near the water's edge, inside the great crater of Rana Kao. This remarkable volcano is 1,327 feet high. The diameter of the crater at the top is 4,150 feet. At the water line inside it measures 2,085 feet across. The depth from the top to the lake is 600 feet, so that the surface of the latter is 727 feet above the sea level. The crater is nearly a perfect circle and unbroken at its upper edge, except at a point at its southern side, toward the ocean, where exists a large cleft or notch, through which, no doubt, the lava, when the volcano was active, found its way to the sea, and perhaps assisted in forming the small adjacent islands of Mutu Nui and Mutu Raukau. It was to this latter island that their swimming matches were annually held, in the effort to see who should be the first to reach it, climb to the precipitous sides, and bring back one of the sacred eggs of the sea bird, to which they attached such a superstitious value, and which conferred kingship for the year on the lucky captor for his prowess. This rock, covered with birdlime, looks at a little distance like a huge inverted stalactite projecting high in air from the depths of the sea. The labor and difficulty involved in mounting it, therefore, may be imagined.

133 487 The interior of the crater (Rana Kao) is distinctly conical in shape, resembling a vast amphitheater, and presents a magnificent view. Trails lead to the bottom, in various directions, evidently the tracks worn by animals; but the descent, as well as the ascent, is most difficult, and but very few ever attempt the feat.

133 137 Grazing around the edge of the lake, as well as on the floor of vegetable matter floating on its surface, could be seen cattle which looked, at that dizzy height, of about the size of sheep, and sheep which appeared like rabbits. The lake at the bottom has been sounded by Mr. Salmon to a depth of 300 feet, when his line parted, without touching bottom. The surface edge is covered, over almost its entire extent, 137 with a thick, dense, intertwined, vegetable growth, the accumulation of many years, from which grow small trees and bushes of considerable 312 size. At various places, and few in number, over this floating, elastic, vegetable floor, which rises and falls as the water in the lake increases or diminishes in quantity, according as it is the rainy or dry season, are openings of variable size and irregular circular shape, through which the water appears, rippled by the passing winds, and to which the animals resort to drink. Around these openings the vegetation is of a vivid green, evidencing present and vigorous growth, as well as gradual but steady encroachment on the small remaining free surface of the lake, so that in course of time it will no doubt become entirely covered. Other portions of the vegetable mass are of a deeper shade of green, while still other and older parts are of varying tints of brown. 312 Cattle and sheep may be seen browsing unconcernedly over various portions of the floating floor of vegetation, a curious and interesting spectacle, and instinctively, perhaps, avoiding the treacherous places

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likely to precipitate them into the depths below. A path of planks has been laid to the edge of one of the openings, the more readily to enable the natives to obtain the water, which, as may well be inferred, is brackish and unpleasant to the taste and thoroughly impregnated with animal and vegetable matter, vast masses of the latter being in a constant state of decay.

The climate can scarcely be otherwise than salubrious and healthful. The southeast trades from October to April blow fresh at the beginning and end of the season. During our stay in December they were moderately strong, and the weather continued exceedingly pleasant. For the remainder of the year the winds are uncertain, westerly prevailing perhaps; the weather is changeable, and there is abundance of rain. Electric storms are unknown.

A psychrometrical record taken both on board ship, and to a very limited extent ashore, accompanies this report; as also a copy of the meteorological record from the ship's log during our stay at the island. In the latter the figures in the column "wet bulb" are not entirely reliable, by reason of the inadequate nature of the cotton siphon, which consists merely of a few strands of ordinary lamp wick and does not cover the bulb. With the exception of the two craters of Rana Kao and Rana Roraka, the bottoms of which form lakes, as already stated, and which are isolated and far from the habitations, there is no decaying vegetable matter to be found worthy of note, and the island may therefore be said to be free from malaria and the diseases of paludal origin. During the rainy season an occasional case of remittent appears, but it is of mild type; medication is not resorted to, and recovery takes place when dry weather sets in. So healthful is the climate, so simple are the habits of the people, and so isolated are they from contact with the outer world, and, consequently, the numberless malign influences which there hold sway, that diseases of any kind are very rare among the Rapa Nuis, and they seem to be exempt from the ordinary ills of humanity. There are no "medicine men" among them, and they have no pharmacopœia worthy the mention.

During inclement weather a trifling "cough"—occasionally a case of pneumonia—a mild attack of rheumatism, may appear, and mention is also made of cerebral neuralgia. During our visit there was not, to the best of our knowledge, a case of acute disease on the island.

It is stated that from May to October occasional cases of asthma show themselves, which the natives attribute to eating deep-water fish which have fed on a certain marine plant, the name of which the writer was unable to ascertain. This may be taken as delusion; and it may be mentioned in this place that a well-marked case of asthma, in the person of one of the *Mohican's* firemen, was notably worse and suffered severely during the entire period of our stay at the island.

A disease of the soles of the feet, which the natives called *kino*, consisting, according to their statements, as understood, of fissures and ulcer-

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an unfinished condition; that many more are to be found in the quarries, both inside the crater and on its outer slope, in all stages of development; and inferring from this that the workmen suddenly ceased their labors, the thought readily suggests itself, in explanation of the mystery, that either Rana Roraku or one of the neighboring volcanoes suddenly entered into a state of activity, threw out these showers of stones and, probably destroying many lives, stopped the labors of the workmen, which were thenceforth never resumed. Perhaps, too, the same calamity overthrew many of the idols, of which not one is now standing on its pedestal, laid waste the island, and wrought the destruction of the trees which once adorned it, and from the period of the occurrence of that disaster, the time of which can only be remotely guessed at, dates the decadence of the ancient people of Te Pito te henua.

The soil of the island is very rich and productive, scant and unpromising as it may appear in many places, and with proper clearing and cultivation, and the planting of the appropriate varieties of food, such as could be stored for consumption during the dry season, supplemented by the sustenance to be derived from the supplies of fish taken, with which the waters abound, a very large population might, no doubt, be maintained.

As to the supply of water requisite for such a number of people, objection on that ground is not insuperable. Diligent search was made by the writer for the remains of cisterns, or any other evidences which they might have left of having had reservoirs for the storage of the precious fluid. None such were to be seen anywhere, and yet they might have possessed them, but of so perishable a character that all traces have long since been obliterated. It seems certain that they had no knowledge of any cement; it is not likely, therefore, that their reservoirs would have been built of stone. Then, too, there remains the fact of the immense bodies of water stored in these natural cisterns, the craters, particularly of Rana Kao. Here is a volume of water, at the present time at least 300 feet in depth, with a circumference at the surface of 2¼ miles, and, if the parts of the crater visible above the water line be extended downward, probably conical in shape. A moment's consideration will show that here is a supply of water sufficient for an almost unlimited number of beings for an indefinite period. It may easily be imagined, also, that measures were most likely taken to maintain its purity, and that a people as intelligent as they appear to have been had some device for obviating the labor of transportation to the top of the crater.

From what has been said it would appear that, even at the present day, the physical characteristics and natural conditions governing the island are not incompatible with the existence and well-being of a large population. I was not surprised, therefore, when Mr. Salmon informed me that from 1850 to 1860 the number of inhabitants was

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impossible for him to rejoin us. He went back later to England, and fell in the service of his country in September 1915. The *Mana* returned to Juan Fernandez and waited there till the fear of further cases developing on board had passed. The island is strikingly beautiful, with high mountains, deep gorges, and wonderful vegetation. It has a few score inhabitants under the charge of one old gentleman as magistrate and some four gendarmes. Here the *Dresden* sought refuge after the battle of the Falkland Islands, and when found by our navy claimed that she was interned. The chief celebrity connected with the place is of course the renowned Alexander Selkirk. His cave is shown and also his look-out point on the crest of the dividing ridge of the island.

From Juan Fernandez we sailed westward for three weeks, and at length in the grey dawn of March 29 Easter Island was sighted. It was thirteen months since we had left Southampton, of which we had been 147 days under way. As our goal at last hove in view a hush fell over the party, broken by the despairing voice of the ship's cook, "I don't know how I am expected to make a fire on that island; there is no wood." He spoke the truth. Easter Island has probably never had much more than brushwood and shrubs; but to-day it is used as a cattle ranch by a Chilean Company, and even that vegetation has disappeared.

The island is of recent volcanic formation, triangular in shape and curiously symmetrical. The highest ground is in the northern angle where an extinct volcanic mass rises to 1700 feet. Both the eastern and western angles are also formed by old volcanoes. At these high points erosion has caused imposing vertical cliffs on the seaward side; elsewhere the shoreline consists of low cliffs only, rising to not more than 50 to 100 feet above sea-level. The main portion of the island is composed of sheets of lava in process of disintegration, across which walking is almost impossible, and riding a very slow process. It is diversified at intervals by cones of volcanic ash some hundreds of feet in height, each with its own small crater. Grass covers the whole area, sprouting up on the lower ground between the masses of lava and covering the hills in such manner as to give them a down-like appearance. A few of the craters have lakes, but there is not one surface stream, and the water-supply is a great difficulty. There is no safe anchorage, and after the *Mana* had landed the shore party and stores she was sent back to Chile for mails and fresh provisions. She made altogether seven trips between Easter Island and the mainland, covering in these passages alone 14,800 nautical miles.

The shore party consisted at this time of our two selves, Lieut. Ritchie, the yacht's engineer, who was also photographer, the cook, and for a short while a Chilean boy from Juan Fernandez. Our experiences on the island were of a more exciting nature than had been anticipated, but as they have already been told they need only brief mention now.

The native population is of Polynesian race, and numbers at the present time about 250. They are confined to the district on the western